



User's Guide

RecoveryVault PC Backup v5.5

User's Guide

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1 Overview

1.1 Benefits

- Easy Backup of
 1. Windows System State
 2. Outlook and Outlook Express (i.e. *.pst, *.dbx and *.wab)
 3. Important personal settings, e.g. Desktop, Favorite, My Documents and History etc
 4. Other common files (e.g. *.doc, *.xls)
- Supports backing up only changes within a file (using in-file delta technology)
- Supports backing up of open files on Windows XP/2003/Vista (Volume Shadow Copy)
- Supports backing up of Windows NTFS access privileges and Mac OS X metadata and resource forks
- Easy to use, deploy and maintain

1.2 Features

- (New in 5.5) Re-design of RecoveryVaultPC GUI
- (New in 5.5) Continuous data protection - start backup whenever a file is being modified
- (New in 5.5) Add options for user to choose to backup using 256-bit Encryption
- (New in 5.5) Add the functionality of "Backup and Sleep (Hibernate)" and "Backup and standby"
- (New in 5.5) Allow backup schedule to run every "X" minutes
- Full support of Microsoft Exchange individual email, contacts, calendars, tasks etc.
- Choose whether to restore "file permissions" during restore.
- For "Local Copy" backup, ability to choose whether to perform a local copy backup only and skip the offsite backup.
- Auto Upgrade Agent to automatically upgrade the client software.
- User configurable incremental / differential in-file delta backup mode (i.e. backing up only changes within a file since the last incremental or full backup according to each user's preference).
- Allow in-file delta backup mode to be overridden by each user individually according to backup time (e.g. enforcing full (or incremental or differential) backup of all files every Sunday or the 1st day of every month).
- Volume Shadow Copy backup (i.e. backing up files even when they are exclusively open, e.g. Outlook.pst).
- In-File Delta backup (i.e. backing up only changes within files).
- Off-line backup mode and logout backup reminder.
- Customizable backup schedule allows backups to be scheduled at any time.
- Compress and encrypt data automatically before sending them to the server (server stores only encrypted data).
- Increment backup strategy ensures that only new or updated files are sent to the backup server.
- Can integrate with external "Open File Manager" to provide open file backup support to all open files.
- Access backup data anytime, anywhere by using a web browser.
- Comprehensive backup report lists all files backed up. Backup report delivered automatically via email.
- Backup data are CRC validated before they are stored on server.
- Fully user customizable data retention policy allows users to have access to deleted files using the least possible storage space on the backup server.
- Can select source backup files easily by using a backup filter, e.g. selecting all *.doc and *.xls in your computer in a single operation.
- Run any custom OS commands before/after a backup job.
- Periodic backup files validation on backup server ensures backup files are 100% valid and fully restorable when needed.

1.3 Security

- 128-bit point-to-point SSL communication between server and client
- Support HTTP/HTTPS Proxy and Socks v4/v5 firewall
- Data is 128-bit/256-bit encrypted when stored on the backup server
- Choice of different encryption algorithms, e.g. Twofish, Triple DES, Advanced Encryption Standard (AES)
- Choice of different encryption modes, e.g. Electronic Cook Book (ECB) and Cipher Block Chaining (CBC)
- A random initializing vector, salt and iteration count will be generated by the software automatically for each file when encrypting your data
- Each backup user can restrict online access to their files, to their pre-defined list of IP addresses

1.4 System Requirements

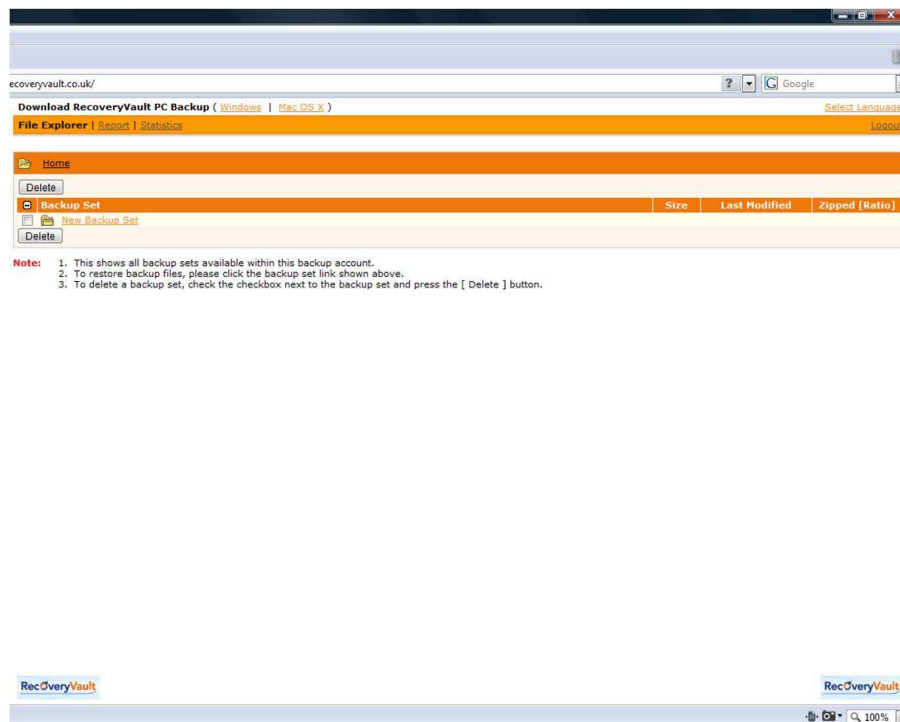
Client-side applications			
	Supported Platforms	Application Compatibilities	Hardware Requirements
RecoveryVaultPC 	Windows 95 / 98 / ME / NT / 2000 / XP / 2003 / Vista Mac OS X 10.3 or above	- Outlook / Outlook Express i.e. *.pst, *.dbx and *.wab - Other common files e.g. *.doc, *.xls - Also supports backing up of: Windows NTFS access privileges	- Memory: - o 128MB (minimum) - o 256MB (recommended) - Disk Space: - o 110MB - Network Protocol: TCP/IP (http/https)

2 Installing RecoveryVaultPC

Before you can start backing up data to the RecoveryVault Backup Server (RVBS), you need to install the RecoveryVault PC Backup client (RecoveryVaultPC) onto your computer.

2.1 Installing RecoveryVaultPC for Windows

1. Download the RecoveryVaultPC installer from the website.



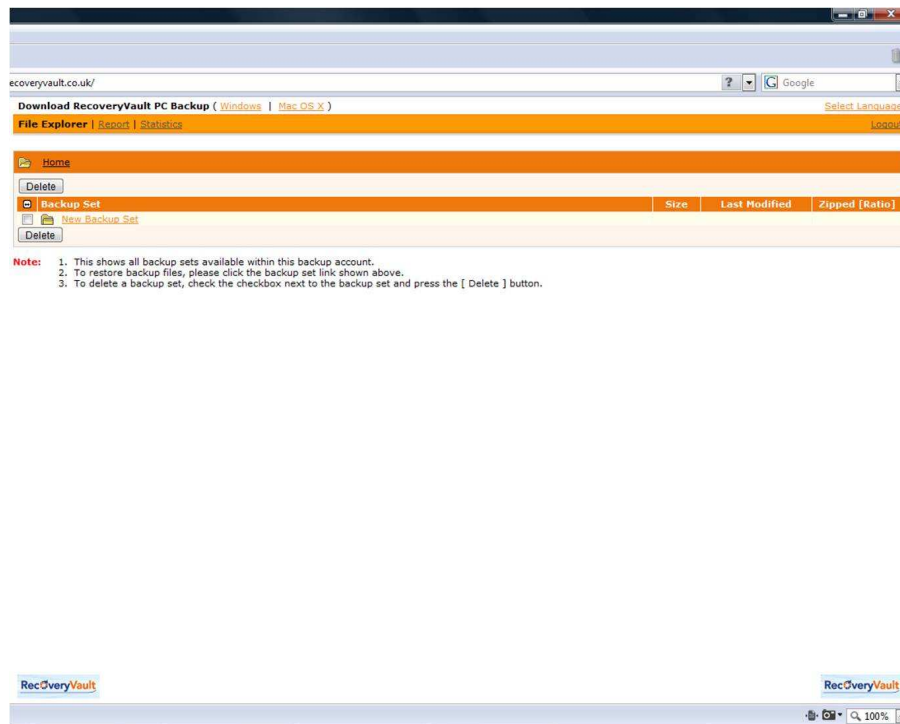
2. Follow the instructions on the installation wizard to complete installation
3. When finished, a new icon (RecoveryVaultPC) will be installed to the system tray (near the clock) automatically and RecoveryVaultPC will be launched automatically.
4. Enter the backup server host name in the [Address] field and press the [Next] button. (Not applicable to managed services)
5. If you don't have a backup account, register a trial user by the following steps:
 - i. Enter the [Login Name], [Password] and [Confirm Password] of your choice
 - ii. Enter your [Email] in the text field provided
 - iii. Press the [Submit] button
 - iv. You should be logged to the backup server already (if the [Login Name] of your choice is already taken by another user, try a different login name)
6. If you have a backup account already, select [already a user?] and logon to the server with your existing username and password.
7. If this is your first time logging onto the server, you will be guided to create a backup set:
 - i. Enter a backup set name of your choice in the [Name] field and choose the type of backup set in the [Type] field
 - ii. Select the files that you want to backup
 - iii. Setup the backup schedule by pressing the [Add] button (please note that you can add multiple backup schedules to a backup set and please select the "Run scheduled backup on this computer" checkbox if you would like to run Continuous Data Protection (CDP))
 - iv. Setup the encryption setting for your backup set (if you don't know much about encryption, just

accept the default values here)

- v. Press the [OK] button to complete the configuration of backup set. Scheduled backups will run automatically if you leave your computer on.
8. To run a backup immediately, click [Backup] button on the left panel, select the backup set and press [OK] button.
9. Setup completed.

2.2 Installing RecoveryVaultPC for Mac OS X

1. Download the RecoveryVaultPC installer from the website.



2. Expand the archive and run the installation wizard [RecoveryVaultPC] within the archive.
3. Restart your Mac. Double click the desktop RecoveryVaultPC icon to start.
4. Enter the backup server host name in the [Address] field and press the [Next] button.
5. If you don't have a backup account, register a trial user by the following steps:
 - i. Enter the [Login Name], [Password] and [Confirm Password] of your choice
 - ii. Enter your [Email] in the text field provided
 - iii. Press the [Submit] button
 - iv. You should be logged on to the backup server already (if the [Login Name] of your choice is already taken by another user, try a different login name)
6. If you have a backup account already, select [already a user?] and logon to the server with your existing username and password.
7. If this is your first time logging onto the server, you will be guided to create a backup set:
 - i. Setup the backup schedule by pressing the [Add] button (please note that you can add multiple backup schedules to a backup set, and please select the "Run scheduled backup on this computer" checkbox if you would like to run Continuous Data Protection (CDP))
 - ii. Setup the encryption setting for your backup set (if you don't know much about encryption, just accept the default values here)
 - iii. Press the [OK] button to complete the configuration of backup set. Scheduled backups will run automatically if you leave your computer on.
8. To run a backup immediately, click [Backup] button on the left panel, select the backup set and press [OK] button.
9. Setup completed.

3 Uninstalling RecoveryVaultPC

This section describes the steps required to uninstall RecoveryVaultPC from your computer.

3.1 Uninstalling RecoveryVaultPC for Windows

1. Open [Start] -> [Control Panel] -> [Add/Remove Programs]
2. Select [RecoveryVault PC Backup] from the list and press the [Remove] button

3.2 Uninstalling RecoveryVaultPC for Mac OS X

1. Remove all program files by running

```
# cd $ACB_HOME/bin
# sudo ./uninstall.sh
```
2. Remove all backup setting by removing ~/.acb

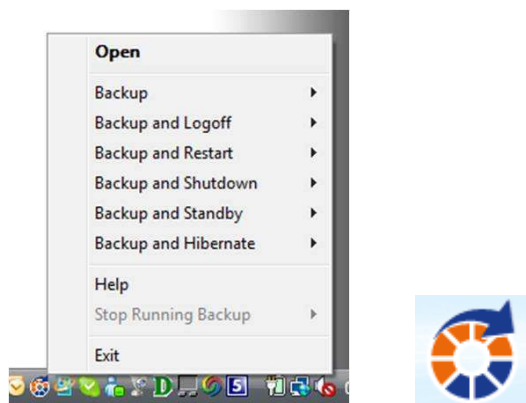
```
# rm -rf ~/.acb
```
3. Restart your computer

4 Using RecoveryVaultPC

This chapter will describe all the features available in RecoveryVaultPC and outline how you can use RecoveryVaultPC to meet various backup needs.

4.1 System Tray Launcher (Windows Only)

After you have successfully installed RecoveryVaultPC onto your computer, a RecoveryVaultPC icon will be added to the system tray area (next to your system clock) automatically.



This icon is the entry point to RecoveryVaultPC. Right clicking the icon will show a menu that provides the following functions:

Menu Item	What it does
Open	Run RecoveryVaultPC.
Backup	Runs a specific backup set (or all backup sets) chosen from the sub-menu in silent background mode.
Backup and Logoff	Runs a specific backup set (or all backup sets) chosen from the sub-menu in silent background mode and then logs off from Windows when finished.
Backup and Restart	Runs a specific backup set (or all backup sets) chosen from the sub-menu in silent background mode and restarts Windows when finished.
Backup and Shutdown	Runs a specific backup set (or all backup sets) chosen from the sub-menu in silent background mode and shutdown the computer when finished.
Backup and Standby	Runs a specific backup set (or all backup sets) chosen from the sub-menu in silent background mode and enters the Standby mode of Windows.
Backup and Hibernate	Runs a specific backup set (or all backup sets) chosen from the sub-menu in silent background mode and enters the Hibernate mode of Windows.
Help	Shows a help dialog
Stop running backup	Interrupts a running backup set (or all backup sets) chosen from the sub-menu.
Exit	Closes the system tray launcher application.

4.2 Logon Dialog

Before you can use RecoveryVaultPC, you have to be authenticated by RecoveryVault Backup Server first. The logon dialog shown below will check if you have the right to access RecoveryVaultPC by submitting the username and password you provided to the RVBS.



For secure communication, you can choose to communicate with RecoveryVaultBS in SSL (Secure Socket Layer) by selecting the [https] option.

The [Address] field shows the network address of RecoveryVaultBS to which RecoveryVaultPC will connect to authenticate your username and password. You can use either a resolvable host name (e.g. backup.your-domain.com) or an IP address (e.g. 192.168.1.1).

If RecoveryVaultBS is not accepting connection from the standard ports (Port 80 and 443 for http and https respectively), you can append a semi-colon ":" and the custom port number to the host name of the [Address] field (e.g. www.backup-provider.com:8080) to connect to the server using the custom port number (port 8080 in this case).

If you need to connect to the server through proxy, just enter your proxy setting in the [Proxy Setting] section. For [SOCKS] proxy, both v4 and v5 without user authentication are supported.

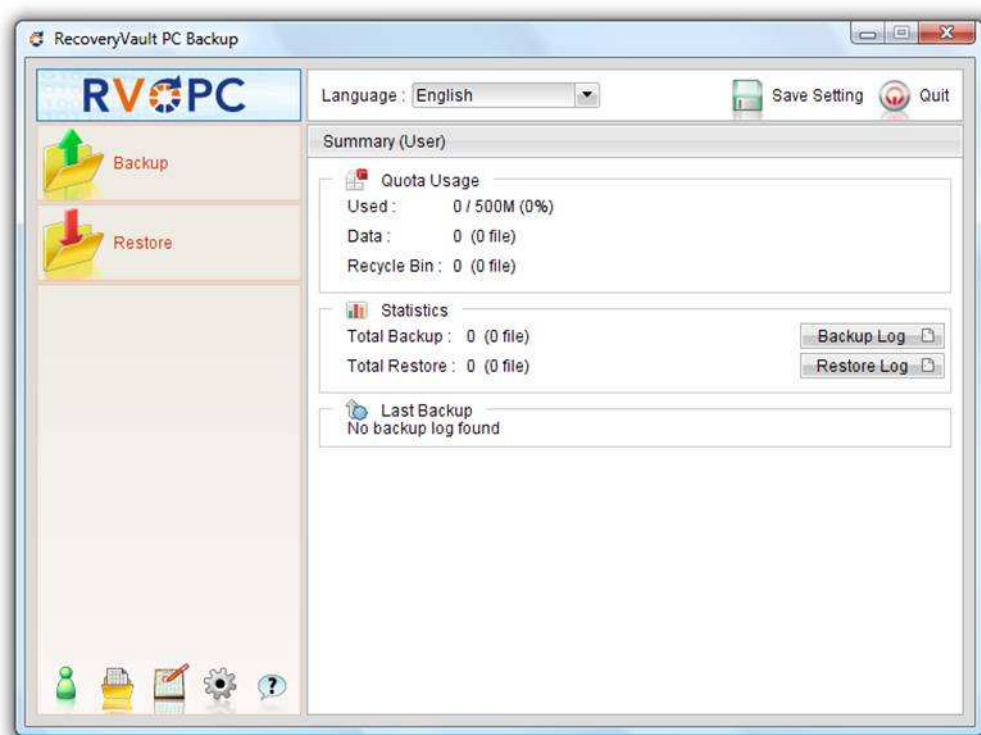
4.3 Language Selection

You can switch the language of the RecoveryVaultPC user interface by choosing the desired language available from the [Language] drop down list. The languages (available on request) other than English include Czech, Danish, Dutch, French, Spanish, Portuguese, Icelandic, Norwegian, Finnish, Italian, German, Swedish, Chinese (Traditional and Simplified), Japanese, Lithuanian and Slovenian.



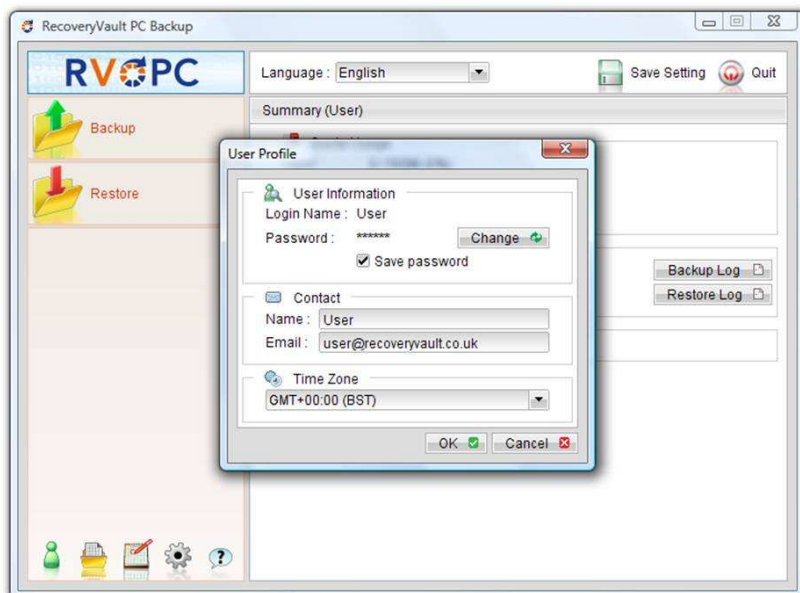
4.4 Main Window

Press [OK] to login. After the backup server authenticates you successfully, the RecoveryVaultPC main window appears.



4.5 User Profile

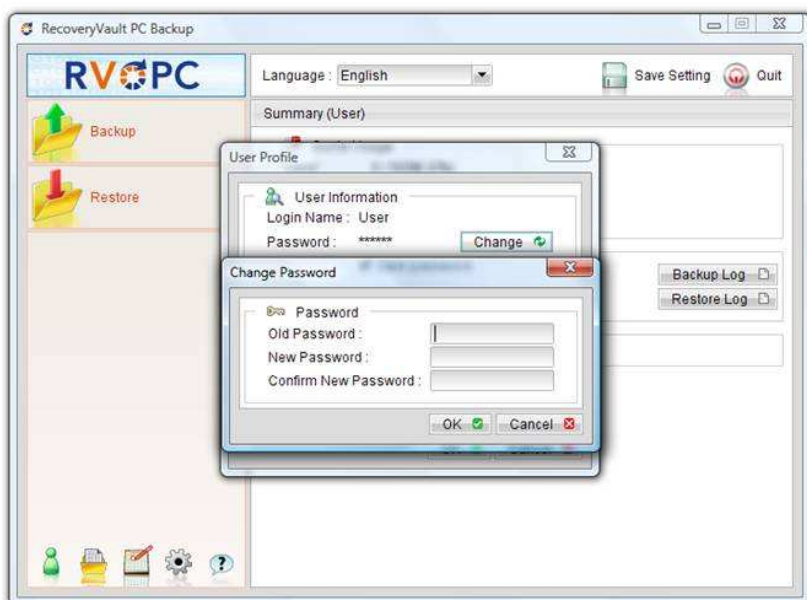
You can then use RecoveryVaultPC to update your user profile. Press the  button to open the [User Profile] dialog.



You can perform the following updates to your user profile.

To change your [Name], enter the new name in the [Name] field and press [OK].

To change your [Password], press the [Change] button next to the password field. A [Change Password] dialog will appear. Enter your original password and new password into the text field of this dialog and press [OK].



To change your [Time Zone], just select your time zone from the drop down list next to the time zone entry.

To change the contact email for this account, enter a new email address in the text field provided and then press the [OK] button.

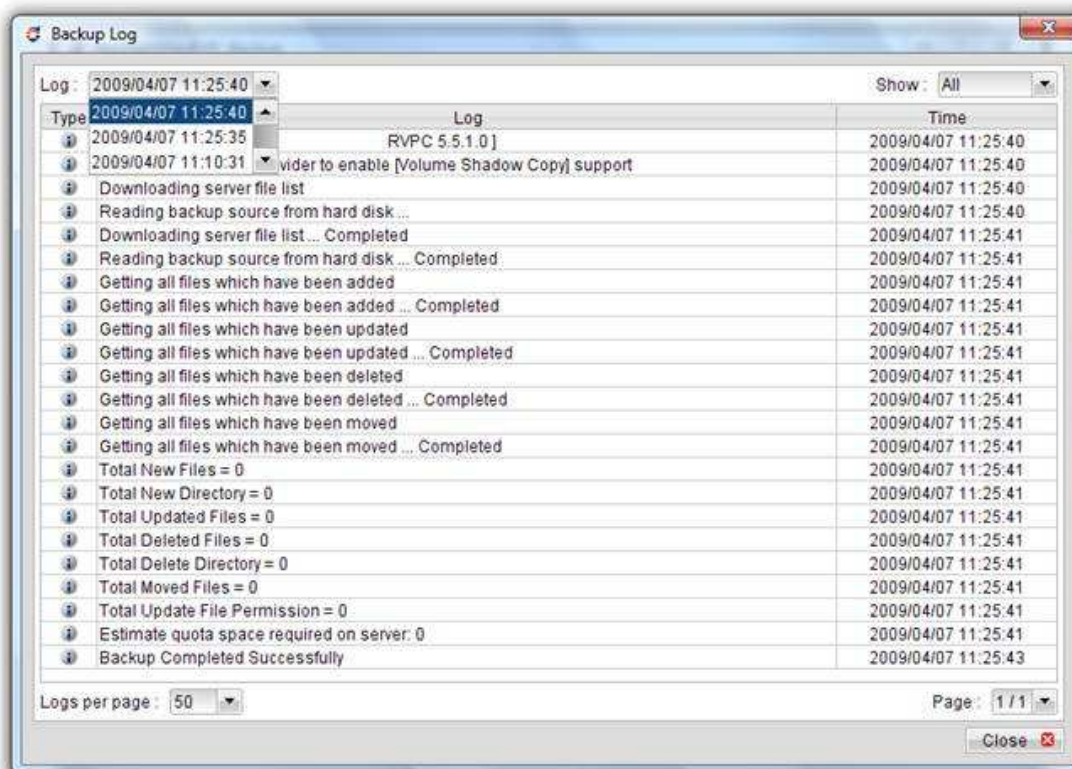
4.6 Backup Logs

All backup activities are logged to backup activity log files. They are available to review through RecoveryVaultPC.

How to review backup activities?

You can review all your backup jobs by:

1. Pressing the [Backup Log] button on the RecoveryVaultPC main window.
2. Select the Backup Job you want to review from the [Log] drop down list.



5 Setting Up Backup Sets

A backup set contains all backup settings of a backup operation. This section will describe all features available within a backup set and explain how you can use each of them to achieve various tasks.

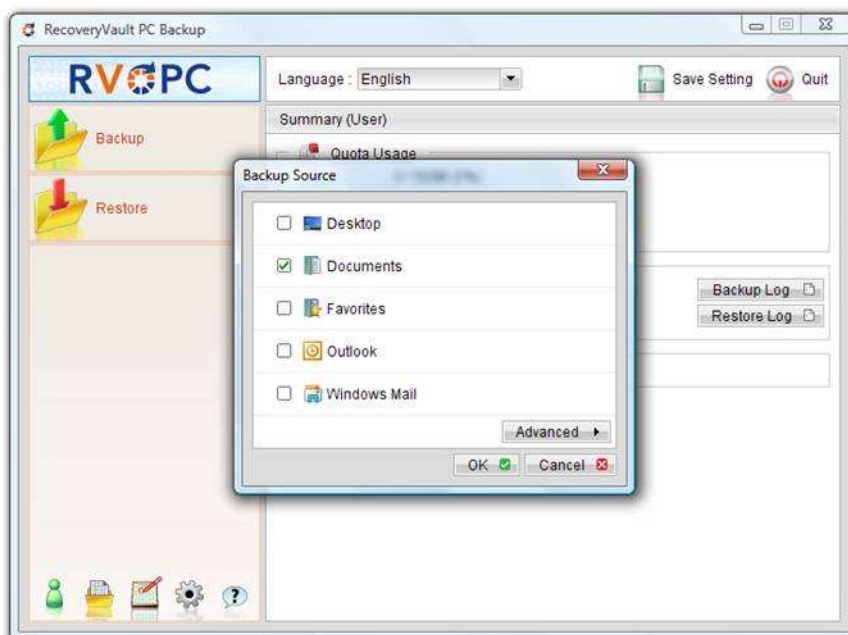
5.1 Backup Source

A "Backup Source" defines the files/directories that are to be included in a backup set. There are two types of backup source: Selected and Deselected. "Selected backup source" defines files/directories that are to be included in a backup set while "deselected backup source" defines files/directories that are to be excluded from a backup set. RecoveryVaultPC will generate appropriate backup source settings for you automatically when you make your backup source selection.

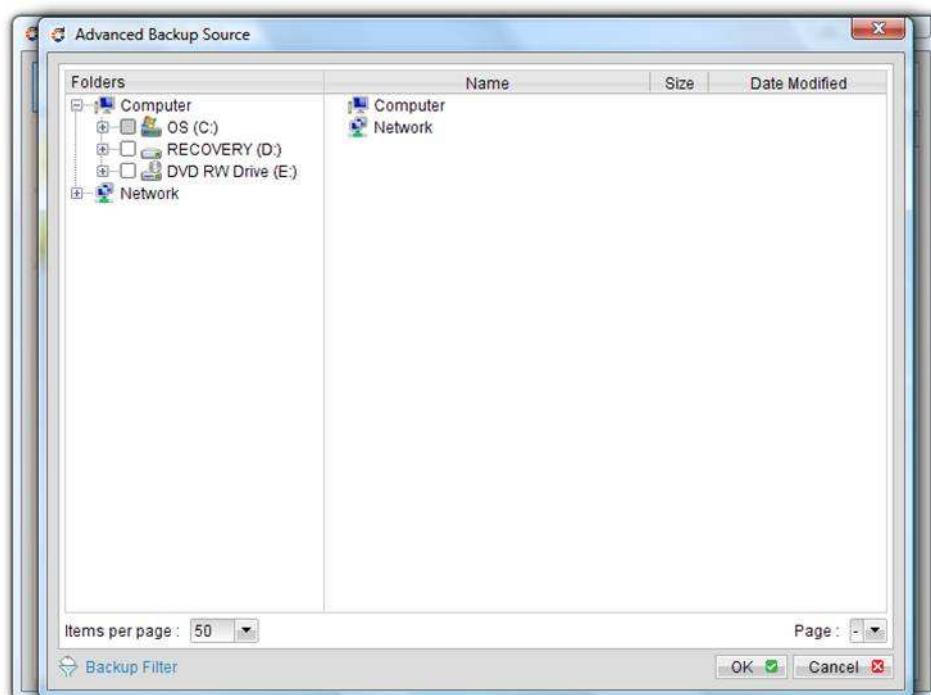
Please note that for Windows operating systems, if the "Hide protected operating files (Recommended)" setting is enabled for the file explorer, system folders/files will not be shown in the backup source. By selecting the parent folders however, all subfolders (including system folders/files) will be included in the backup set. Thus if you want to exclude system folders (e.g. recycle bin) from the backup, please select the desired folders/files directly rather than selecting the parent folder. Alternatively, you can enter the corresponding system path to the [Exclude List] of the backup set using the web interface.

On the first screen of the dialog, you can easily select the following common folders to be backed up:

1. "Desktop" folder
2. "My Documents" folder
3. "Favorites" folder
4. "Outlook" and "Outlook Express" mail store folder



On clicking the [Advanced] button, you can easily select other common folders to be backed up as well.



The checkbox next to the files/directories shown above can be in one of the following mode:

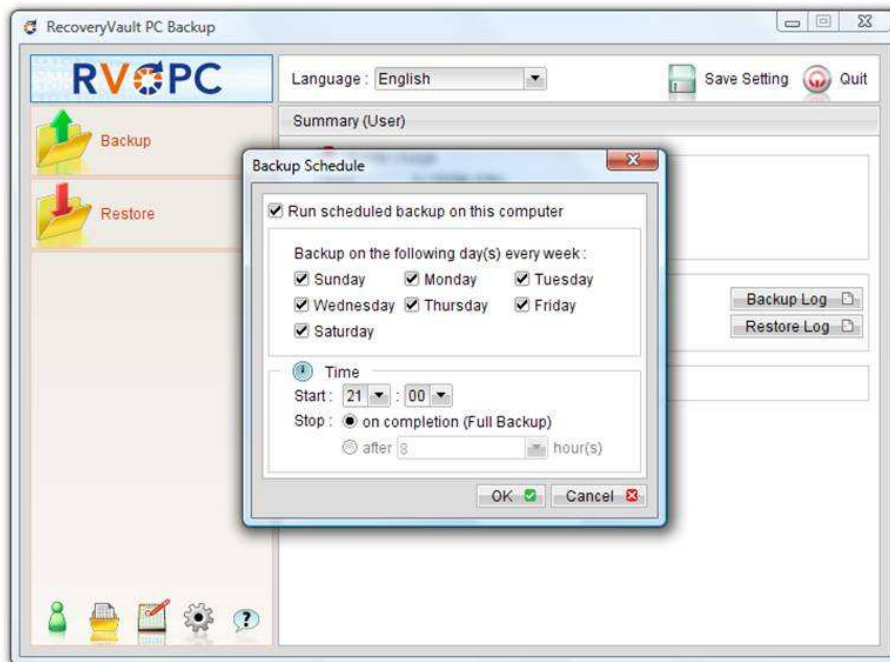
Mode	Description
☒	All files/directories (recursively) under this directory will be backed up
☒	All files/directories (recursively), except those explicitly excluded, under this directory will be backed up. If you add files/directories to this directory in the future, they will be backed up as well.
☐	Only the checked files/directories under this directory will be backed up. If you add files/directories to this directory in the future, they will NOT be backed up.
☐	Nothing under this directory will be backed up.

By clicking on the boxes, you can change the modes of each file/directory, in order to create a set of files to be backed up.

You can change the backup source anytime after creating the backup set, by clicking the [Backup Source] icon at the bottom of the left hand column on the RecoveryVault PC main page.

5.2 Backup Schedule

A "Backup Schedule" defines the frequency and the time that backups should run automatically.



Backup schedules can ensure backups are run daily or weekly on any chosen day.

For the selected schedule, backup will run at the scheduled time for a maximum of the duration specified (or until all data is backed up if [Stop on backup completion] option is chosen). If a backup job does not finish within the maximum duration specified, it will be interrupted.

You can change the backup schedules anytime after creating the backup set, by clicking the [Backup Schedule] icon at the bottom of the left hand column on the RecoveryVault PC main page.

5.3 Continuous Data Protection (CDP)

RecoveryVaultPC's Continuous Data Protection (CDP) feature enables files to be backed-up automatically at the time when there are changes to files on local hard disks. The benefits of using CDP are:

1. All intra-day interim changes are backed up automatically. Even if the computer breaks down completely before users had the chance to backup their data at the end of the day, all changes within the day have been backed up safely by CDP and no data is lost.
2. Sometimes users do not save their data in the folders designated as backup source path and this results in data not being backed up even when backups run. Since CDP tracks all changes of files on local hard disk automatically for users, all files changed by the users are automatically backed up no matter whether the files are located in the backup source paths or not. This makes defining a backup set a much easier task for both administrators and users.

Although CDP is a very helpful feature, it does have some drawbacks. For example, a memory resident program, which tracks file changes to the file system and backs up files continuously in background, consumes both a computer's CPU and memory resources. Depending on the volumes of data changes it can potentially slow down a computer considerably.

The following table explains all CDP parameters available within a backup set.

Parameter	Description
Enable Continuous Data Protection (local disk only)	It defines whether CDP is enabled in this backup set. Please note that CDP will only backup files on local hard disks, not files on floppy drives, removable drives and network mapped drives.
Type	[Backup file(s) selected by backup sources and filters] – when this option is selected, CDP will only back up all changed files selected by backup set sources and filters settings [Backup all files] – when this option is selected, CDP will back up all changed files
Do not backup files defined as system files	If this option is enabled, CDP will exclude the following files from its backup: 1. '[WINDOWS_DIR]' (e.g. C:\WINDOWS*) 2. '[PROGRAM_DIR]' (e.g. C:\Program Files*) 3. '[RECYCLE_BIN_DIR]' (e.g. C:\RECYCLER, D:\\$Recycle.Bin) 4. '[ALL_LOCAL_DRIVE]:\Pagefile.sys' (e.g. C:\Pagefile.sys, D:\Pagefile.sys) 5. '[ALL_LOCAL_DRIVE]:\hiberfil.sys' (e.g. C:\hiberfil.sys, D:\hiberfil.sys) 6. '[ALL_LOCAL_DRIVE]:****.tmp' (e.g. C:\xxx\abc.tmp, D:\yyy\abc.tmp) 7. '[ALL_LOCAL_DRIVE]:\System Volume Information' (e.g. C:\System Volume Information, D:\System Volume Information) 8. '[APP_DATA]\Microsoft' 9. '[APP_DATA]\Kaspersky Lab' 10. '[APP_DATA]\Symantec' 11. '[APP_DATA]\Avg7' 12. '[APP_DATA]\Avg8' 13. '[APP_DATA]\McAfee' 14. '[APP_DATA]\McAfee.com' 15. '[APP_DATA]\Sophos' 16. '*\ntuser.dat' 17. '*\Application Data\Mozilla*' 18. '*\Local Settings\Application Data\Microsoft*' 19. '*\Application Data\Macromedia*' 20. '~\$*.doc dot ppt xls DOC DOT PPT XLS' 21. '*\Local Settings\Temp\Temporary Internet Files\History*' 22. '*\LOCALS~1\Temp\Tempor~1\History*' where [APP_DATA] = "C:\Documents and Settings\All Users\Application Data\" (XP) or "C:\ProgramData" (Vista)

5.4 Encryption

Before your files are sent to RecoveryVaultBS, all your files are compressed and encrypted using your choice of encryption algorithm, mode and key.



The following table explains all encryption parameters available within a backup set.

Note:

Encryption settings are set at backup set creation time and cannot be modified. You need to create a new backup set if you want to change your encryption settings for a backup set.

Parameter	Description
Mask Encrypting Key	It ensures the encryption key is not visible to any user or administrator.
Encrypting Key	The key used to encrypt all files within a backup set. Please write it down on paper and keep it in a safe place. If the key is lost, you will not be able to recover your files from the encrypted backup files.

5.5 Temporary directory

If you are running a file backup job with in-file delta enabled or a database type backup job, RecoveryVaultPC will generate temporary files and the directory that will be used to store all these files is defined by [Options] -> [Temporary directory for storing backup files]. Please set this to a non-system disk partition that has enough free space to avoid problems.

You can set the [Temporary directory for storing backup files] to a mapped network drive. If you choose to do this, please use a UNC path (e.g. \\SERVER\SHARE) and don't forget to configure the [Backup Set] -> [Network Resources Authentication for Windows] setting.

5.6 Microsoft's Volume Shadow Copy Service (VSS)

Microsoft Volume Shadow Copy Service (VSS) allows you to backup files that are exclusively opened. Without VSS, you will get the error message "The process cannot access the file because another process has locked a portion of the file" if you are trying to backup a file that is exclusively opened (e.g. Outlook PST file).

Please note that VSS is only available on Windows XP / 2003 / Vista and you must have administrative privileges to start the VSS service on a computer. Also VSS will only work if at least one of your partitions is formatted using NTFS.

If you are running Windows 2003, please install the Windows 2003 VSS hot fix available at <http://support.microsoft.com/default.aspx?scid=kb;en-us;887827> before running VSS.

If you are running into problems with VSS running on Windows XP / 2003, Microsoft's recommendation is to try re-registering the Volume Shadow Copy Service again. Simply run the script [RVBM Home]\bin\RegisterVSS.bat to do so.

For more information, please take a look at the following page for a technical introduction to Volume Shadow Copy Services (VSS):

<http://technet2.microsoft.com/windowsserver/en/library/2b0d2457-b7d8-42c3-b6c9-59c145b7765f1033.mspx>

5.7 Retention Policy

During backup, if RecoveryVaultPC finds that you have deleted a file (or updated a file) on your computer, it will put the corresponding deleted (or updated) file already backed up on the backup server into a retention area. The retention policy setting defines how long files inside the retention area will be kept on the backup server before they are deleted automatically from the server.

Retention policy will only affect "retained" files (i.e. files that have already been deleted or updated on your computer and thus are moved to the retention area of the backup server). For those files that have not been updated on your computer, the backup of these files is kept in the data area on the backup server and won't be affected by the settings of the retention policy. These backup files of unchanged files will stay on the backup server forever until the original files are removed (or updated) from your computer.

5.8 Extra Backup (Off-Line backup, Logout Reminder)

Off-line backup is basically designed for notebook users who are off-line most of the time and cannot rely on the backup schedule to backup regularly. The "Backup Interval" allows notebook users to specify the interval that they would like their data to backup. When the machine is online and this interval has elapsed, backup will run automatically. If [Off-Line Backup Alert] is enabled, a popup message box will ask the user to confirm starting the backup.

The [Email Notification] setting is the number of days since the last backup that triggers the backup server to send email notification to the client to remind him to run an off-line backup.

5.9 In-File Delta

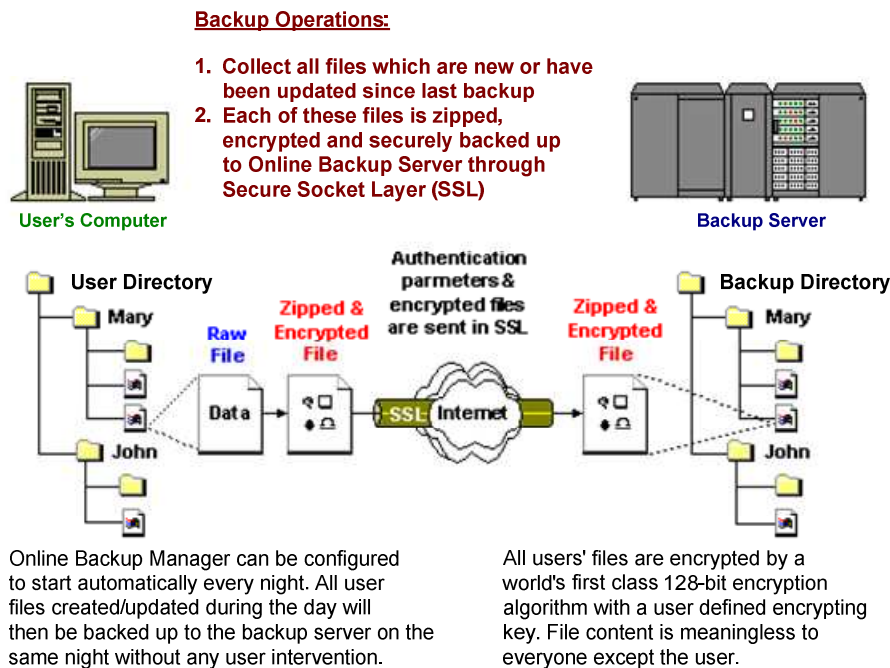
Please refer to the [in-file delta section](#) for more information on this topic.

6 Backing Up Files

This chapter describes how files are backed up by RecoveryVaultPC to the backup server

6.1 How files are backed up

The diagram below describes how RecoveryVaultPC backup your files.



Run backup at scheduled times automatically

Once you set-up your backup schedule, a backup job will be started automatically to perform backup operation for you in your absence. You can have backup running at your scheduled time as often as you want (e.g. twice a day or hourly during office hours) without requiring any extra work.

Incremental Backup

Unchanged files are already backed up to the server and need not to be backed up again. RecoveryVaultPC will pick the new or updated files from your backup set files and upload only these files to the server. It significantly reduces the time required to perform the backup operation since most users update less than 5% of their total data each day.

Compress and encrypt data automatically

Data is compressed and encrypted before it is uploaded to the server. Not only does it reduce the storage space required to keep your backup files, it also ensures the privacy of your data.

File Retention Policy

The built-in file retention policy allows you to access multiple versions of the same file or even deleted files from your backup set. Backup files are put into a retention area before they are removed from the server. If you want to get back a deleted file (or you want to get back the previous versions of an updated file) within the retention period, these files will always be available in the retention area. This feature is particularly useful when you have accidentally deleted a file or incorrectly updated a file within the file retention period (file retention period is user customizable).

6.2 Backup files directly to the backup server

You can backup your data to RecoveryVaultBS by following the instructions below.

Quick Backup

- i. Open RecoveryVaultPC.
- ii. Right click the RecoveryVaultPC icon available in the system tray and choose [Open].
 - a. To select the files to be backed up, press the[Backup Source Button]
 - b. Select the generic folder(s) to be backed up from the list provided
- iii. Run Backup
 - a. Press the [Backup] button on the main page of RecoveryVaultPC dialog.

Note:

Please write the encrypting key down on paper and keep it in a safe place. If you lose your encrypting key, you will **not be able to restore** your backup files.

Advanced Backup

- i. Open RecoveryVaultPC.
- ii. Right click the RecoveryVaultPC icon available in the system tray and choose [Open].
 - b. To select the files to be backed up, press the[Backup Source Button]
 - c. Press the [Advanced] button to brows individual files/folders
 - d. Select the files/folders you want to backup by clicking the checkbox next to the correct file/folder until a tick appears in the checkbox.
 - e. Press the [Ok] button to confirm your choice of files/folders to backup
- iii. Run Backup
 - f. Press the [Backup] button on the main page of RecoveryVaultPC dialog.

7 Restoring Files

This chapter describes different ways files can be restored from the backup server

It is very important to write down your encrypting key on paper and keep it in a safe place because there will be no way to restore your backup files if you lose your encrypting key.

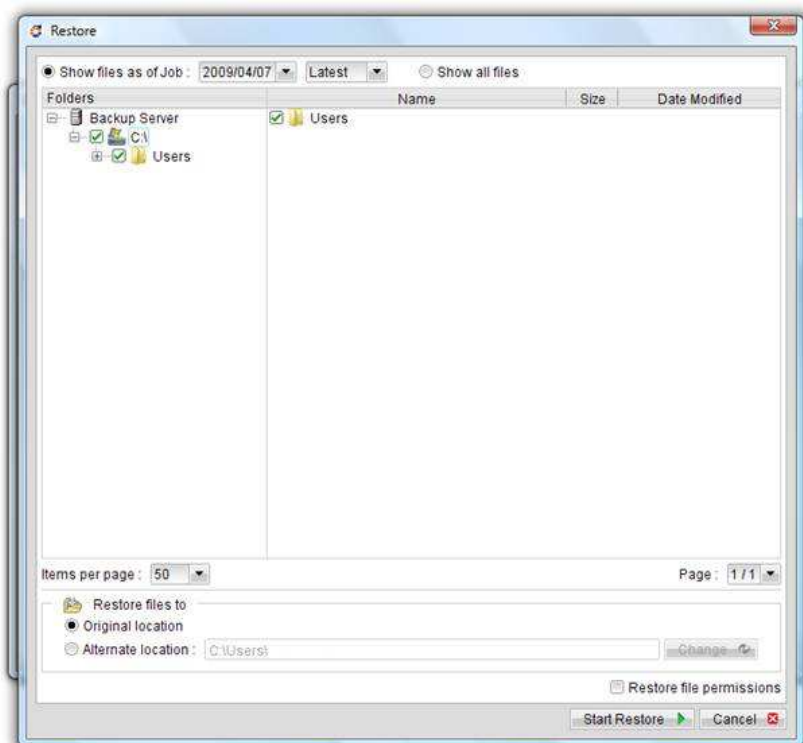
7.1 Restore backup files directly from backup server

You can use either RecoveryVaultPC or the web restorer to restore backup files from the backup server.

Using RecoveryVaultPC

You can restore your data from the backup server by following the instructions below.

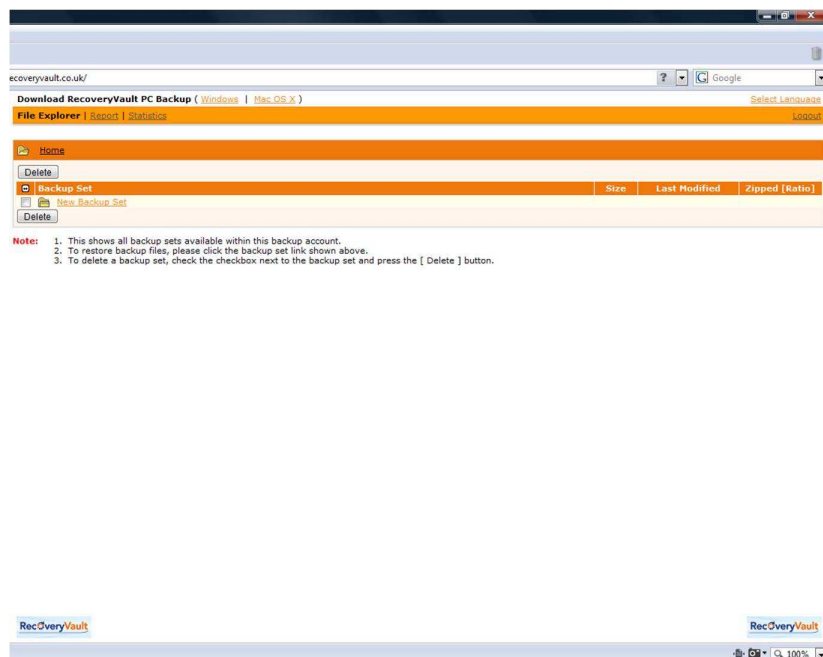
- i. Open RecoveryVaultPC from the System Tray (see previous sections for details).
- ii. Select the [Restore] button on the left of the main page of RecoveryVaultPC dialog
- iii. Use the "Alternate location" checkbox to select the directory to where you want files to be restored (or simply select [Original location] to restore files to their original path).
- iv. Select the files that you would like to restore and press the [Start Restore] button to start.
- v. Files will be restored automatically as shown below (a file won't be downloaded from the backup server again if an identical file exists on local path already).



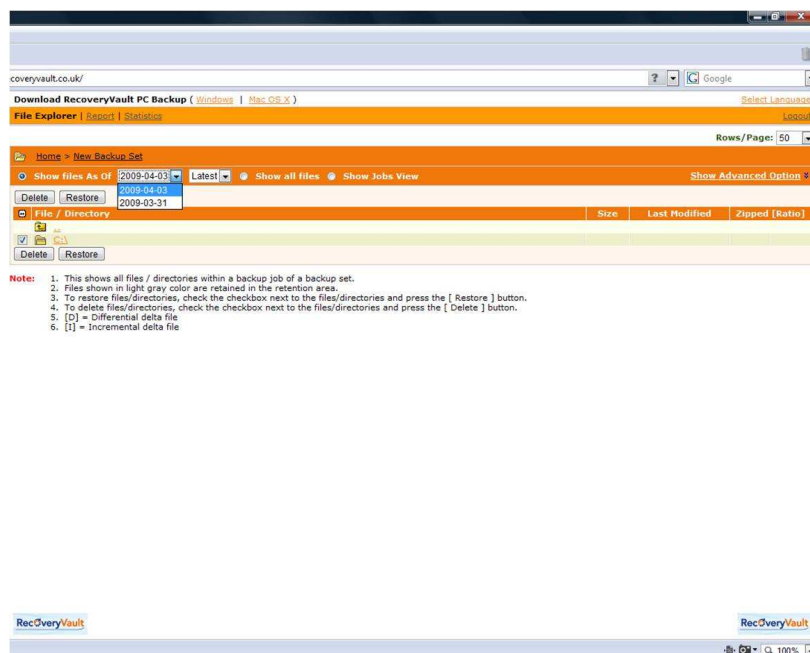
Using the web interface

You can restore your data from RecoveryVaultBS by following instructions below.

- i. Logon to the RecoveryVaultBS web interface
- ii. From the top menu, click [File Explorer]



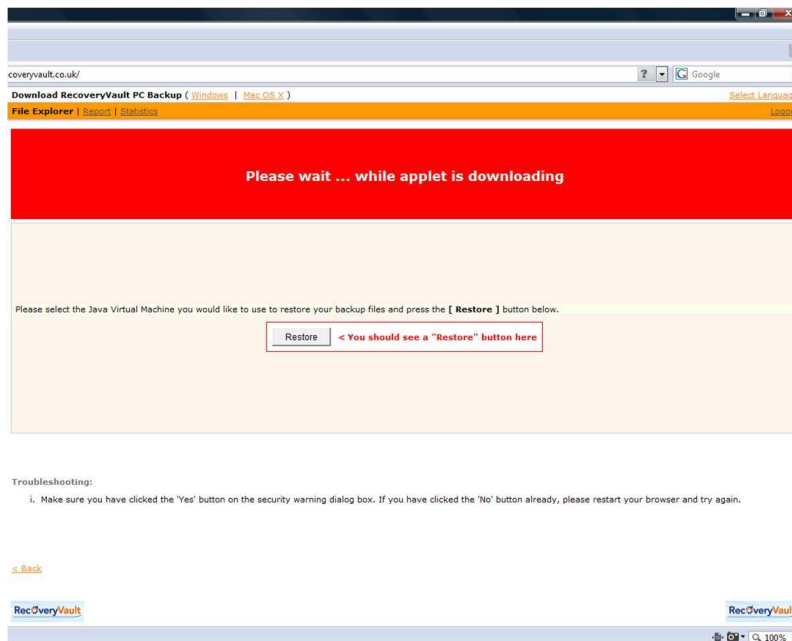
- iii. Select the [Backup Set] that contains the files that you want to restore by clicking on the links
- iv. Select the snapshot of your backup files that you would like to restore from the backup server by using [Show files As Of] drop down list



- v. If you want to see all the different versions of all files (shown as gray below), just choose the [Show all files] radio button on the [File Explorer] page.

Files, which are shown in gray below (e.g. Copy of test.txt), are being stored in the retention area on the backup server but you can still restore these files from the backup server.

- vi. Select the files that you would like to restore and press the [Restore] button on the toolbar
- vii. A dialog shown below should appear



- a. Press the [Restore] button
- b. Enter the directory to which backup files should be restored to in the [Restore files to] textbox
- c. Enter the encrypting key which will be used to decrypt your backup files upon restoring your backup files
- d. Press the [Start] button to start restoring

7.2 IP addresses Restriction for Online Restore

Online file restore operation can be restricted by IP addresses. You can ask your service administrator to restrict online file restoration for your backup sets by IP addresses to only allow people from authorized IP addresses to restore files from the backup server. To check if online file restore of any backup set is restricted this way, please logon to the web interface of RecoveryVaultBS, and check the section of [Backup Set] -> [Online Restore IP restriction] (shown below).

Users are not allowed to update the [Online Restore IP restriction] directly. Please ask your service administrator to do the changes for you.

8 In-File Delta Technology

The chapter describes what in-file delta technology is and how in-file delta can be used to backup large database files (e.g. a 10GB Outlook.pst file) without uploading the whole database file everyday.

8.1 Overview

In-file delta technology is an advanced data block matching algorithm which has the intelligence to pick up changes (delta) of file content between two files. Using this algorithm, daily backing up of large files (e.g. a 10GB Outlook.pst file) over low-speed internet connection is made possible because it requires only the changes of information (should be marginal) since the last backup to be sent over a low-speed internet connection to complete the backup of a large file (here we assume that the full backup of the file has been saved on the backup server already).

This is what will happen in the backup of a 10GB Outlook.pst file when it is backed up by RecoveryVaultPC with in-file delta technology.

- i. All files (10GB), along with their checksum file, are backed up to the backup server. This can be done directly through the internet or indirectly using the [seed loading utility](#) on a removable hard disk.
- ii. When backup runs again later (normally the next day), RecoveryVaultPC will download a checksum listing of all data blocks of the full backup file (or last incremental backup file) from the backup server and use it to pick up all changes that have been made to the current Outlook.pst file.
- iii. Changes detected are then saved in a delta file which is uploaded to the backup server. A new checksum file is generated and is also uploaded. (This delta file is assumed to be small because the content of PST files doesn't change a lot during daily usage)
- iv. Subsequent backups of this 10GB Outlook.pst file will go through step ii and step iii again. As explained, only a small delta file and checksum file will be uploaded to the backup server.
- v. With in-file delta technology, daily backing up of large file over low-speed internet connection is now possible

Incremental in-file delta type

Incremental Delta will facilitate ease of backup. The delta is generated by comparing with the latest uploaded full or delta file. The delta file generated is the smallest possible and uses the least bandwidth during backup. For restoration, the full file and all delta files up to the required point-in-time is required to restore the file to a specific point-in-time.

Example: If you are adding around 100MB of changes to a 10G Outlook.pst everyday.

After the first full backup job, RecoveryVaultPC will continue to generate and upload delta files instead of uploading the full file until either one of the following two rules are true:

- a) Number of deltas generated since the last full backup is greater than the [No. of Delta] setting.
- b) The delta ratio (the ratio of the delta file size against the full file size) is greater than the [Delta Ratio] setting

Using incremental delta, the delta generated by comparing the current file with the latest uploaded full or delta file is around 100MB.

Since the delta file size is around 100MB daily, the delta ratio (around 1%) will not trigger a full file upload. Instead RecoveryVaultPC will continue to generate and upload delta files until day 102 (assuming the full file was uploaded on day 1) when the number of deltas generated exceeds the [No. of Delta] setting and triggers the upload of the full Outlook.pst file. You can disable the [No. of Delta] and [Delta Ratio] if you don't want to upload the full file.

All delta files are generated with respect to changes made since the last incremental or full backup. This means that the last full backup file and **ALL** incremental delta backup files are required to restore the latest snapshot of

a backup file.

Differential in-file delta type

Differential Delta will facilitate ease of restore. The delta is generated by comparing with the latest uploaded full file. The delta file generated grows daily and uses more bandwidth during backup. For restoration, the full file and a single delta file is required to restore the file to a specific point-in-time.

Example: If you are adding around 100MB of changes to a 10G Outlook.pst everyday.

After the first full backup job, RecoveryVaultPC will continue to generate and upload delta files instead of uploading the full file until either one of the following two rules are true:

- c) Number of deltas generated since the last full backup is greater than the [No. of Delta] setting.
- d) The delta ratio (the ratio of the delta file size against the full file size) is greater than the [Delta Ratio] setting

Using differential delta, the delta generated by comparing the current file with the latest uploaded full file is around 100MB for the 1st delta, 200MB for the 2nd delta, 300MB for the 3rd delta and so on.

Since the delta file grows by 100MB daily, the delta ratio for day 52 (delta file size is approximately $51 \times 100 = 5.1\text{GB}$, assuming the full file was uploaded on day 1) being over 50% exceeds the [Delta Ratio] setting and triggers the upload of the full Outlook.pst file. You can disable the [No. of Delta] and [Delta Ratio] if you don't want to upload the full file.

All delta files are generated with respect to changes made since the last full backup file (i.e. differential backup). This means that only last full backup file and the last delta file are required to restore the latest snapshot of a backup file. This means that other intermediate delta files are only required if you want to restore other snapshots of a backup file.

Differential in-file delta backup has the benefits that a corrupted delta file would only make one particular version of a backup file non-recoverable and all other backups created by other delta files of the same file would still be intact.

9 Email Reporting

RecoveryVaultBS makes use of the email system to keep you informed with the status of your backup activities. Please make sure your contact information within the backup system is correct to receive the reports described in this chapter.

9.1 New User Report

When a new backup account is added to the backup server, a new user report will be delivered to the contact email(s) of the new account. The New User Report contains the following information:

Sample Report													
Welcome to Recovery Backup Services													
Generated at: Tue Mar 31 10:35:38 BST 2009													
Getting started: Please download and install the client for RVPC: • Windows 95 / 98 / ME / NT • Windows 2000 / XP / 2003 / Vista • Windows XP / 2003 / Vista (x64) • Mac OS X	<table border="1"> <thead> <tr> <th colspan="2">User Setting</th> </tr> </thead> <tbody> <tr> <td>Login Name</td> <td>: User</td> </tr> <tr> <td>Alias</td> <td>: User</td> </tr> <tr> <td>Language</td> <td>: English</td> </tr> <tr> <td>Contact</td> <td>: user@recoveryvault.co.uk</td> </tr> <tr> <td>Backup Quota</td> <td>: 500M</td> </tr> </tbody> </table>	User Setting		Login Name	: User	Alias	: User	Language	: English	Contact	: user@recoveryvault.co.uk	Backup Quota	: 500M
User Setting													
Login Name	: User												
Alias	: User												
Language	: English												
Contact	: user@recoveryvault.co.uk												
Backup Quota	: 500M												
Further information: If further assistance is required, please refer to the FAQs.													

Key	Description
Login Name	Login name
Password	Password
Alias	Alias
Language	Preferred Language for your backup report
Contact	Email Address that will be used to contact you
Backup Quota	Backup quota
Backup Server	Backup server

9.2 Forgot Password Report

If you have forgotten your password, you can use the [Forgot Password] feature available on the web interface to have your password delivered to you through email. (Please refer to "Retrieve Forgotten Password" section in the next chapter for more information on how to retrieve your forgot password report.) The Forgot Password Report contains the following information:

9.3 Backup Job Report

For each backup job you have run, a backup job report will be sent to you by email. This report contains a summary for the backup job that was run and a full listing of all files being backed up by the backup job. The backup summary report contains the following information:

Key	Description
Backup Time	The time when the backup job ran
Backup Status	The overall status of the backup job. Normally, you should see "Backup finished successfully" in this field. If you happen to get something else, please consult the attached full report for more information.
New Files	Total number and size of backup files added to your backup set
Updated Files	Total number and size of backup files updated in your backup set
Deleted Files	Total number and size of backup files deleted from your backup set
Moved Files	Total number and size of backup files relocated in your backup set
Login Name	Login name
Alias	Alias
Language	Preferred Language for your backup report
Contact	Email Address that will be used to contact you
Backup Source	All files/directories that will be backed up
Backup Data Size	The total backup data stored in the data area
Retention Area Size	The total backup data stored in the retention area. Old copies of updated or deleted backup files are retained in the retention area for the number of days as specified by the retention policy of the backup set before they are removed from the system.
Backup Quota	Backup Quota
Remaining Quota	Remaining Quota

The full backup report, which contains a full listing of all files backed up by the backup job, is attached to the backup job report email as a zip file. You need to unzip it before you can read the full report.

9.4 Setting Change Report

After you have updated your user profile or backup setting, a setting change report will be sent to you. This report allows you to track record of the changes that have been made to your backup account.

Sample Report

Backup Setting Changes Report

Generated at: Fri Apr 03 16:59:01 BST 2009

Why are you receiving this report?

You are receiving this report because your personal or backup settings have been updated. Please confirm the information shown on the right is correct, and that these changes were requested by an authorized user on your contact list. If the changes were not made by an authorized user, change your password, correct your settings and see if this happens again. If this happens again, please contact us for further investigation.

If further assistance is required, please refer to the [FAQs](#).

User Setting

Login Name : User

Alias : User

Language : English

Contact : user@recoveryvault.co.uk

Backup Quota : 500M

Backup Set - New Backup Set

Source(s) : C:\Users

Schedule(s) : Every Sun Mon Tue Wed Thu Fri Sat at 21:00 until backup finished

Filter : None

Retention Customization Policy : Keep deleted files for 7 day(s)

Transfer Block Size : 128k bytes

Pre-Command(s) : None

Post-Command(s) : None

Key	Description
Login Name	Login name
Alias	Alias
Language	Preferred Language for your backup reports
Contact	Email Address that will be used to contact you
Backup Quota	Backup Quota
Backup Source(s)	All backup sources of the backup set
Backup Schedule(s)	All backup schedules of the backup set
Filter(s)	All backup filters of the backup set
Retention Policy	The retention policy of the backup set
Transfer Size	The transfer block size of the backup set
Pre-Command(s)	All Pre-Command(s) of the backup set
Post-Command(s)	All Post-Command(s) of the backup set

10 Web Features

Other than the features of RecoveryVaultPC described in the previous chapter, the web interface of RecoveryVaultBS provides you access to some additional features that are not available in RecoveryVaultPC. This chapter describes each of these features in details.

10.1 Install RecoveryVaultPC

Before you can use RecoveryVaultPC, you have to download the RecoveryVaultPC installer from the web interface of RecoveryVaultBS and install RecoveryVaultPC onto your computer. Please refer to the [installation section](#) for information on how to install RecoveryVaultPC onto your computer.

10.2 Update User Profile

You can update your user profile by using the [Profile] panel available on the web interface. To change your profile, just make any changes to your profile on the panel shown below and press the [Update] button.

Key	Description
Quota	Backup Quota
Data Area	Total number and size backup files stored in the data area
Retention Area	Total number and size of backup files stored in the retention area
Total Upload	Total number and size of backup files uploaded to the backup server
Total Restore	Total number and size of backup files restored from the backup server
Login Name	Login name
Display Name	Alias of your backup account
Language	Preferred Language for your backup report
Time Zone	Your Time zone
Contact	Email Address that will be used to contact you

10.3 Request Forgotten Password

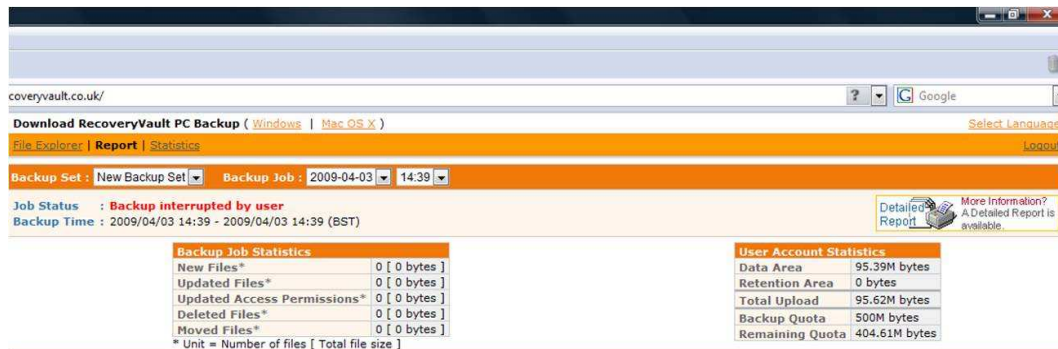
If you have forgotten your password, you can retrieve it by simply entering your login name or your registered email address on the [Password Request] form and press the [Request] button. Your password will be sent to your registered email address automatically.

10.4 Restore/Delete/Undelete Backup Files

Using the [File Explorer], you can browse through the backup data (both current and previous versions) on RecoveryVaultBS. You can select any current backup files to Restore or Delete. You can also select any deleted backup files (in gray) to Undelete.

10.5 Review Backup Jobs

In addition to reviewing your backup activities from the email report and from RecoveryVaultPC, you can also review any of your backup Jobs by using the [Report] panel available on the web interface. To review a backup job, select the required backup job from the [Backup Set] and [Backup Job] drop down lists.



Backup Job Statistics	
New Files*	0 [0 bytes]
Updated Files*	0 [0 bytes]
Updated Access Permissions*	0 [0 bytes]
Deleted Files*	0 [0 bytes]
Moved Files*	0 [0 bytes]

* Unit = Number of files [Total file size]

User Account Statistics	
Data Area	95.39M bytes
Retention Area	0 bytes
Total Upload	95.62M bytes
Backup Quota	500M bytes
Remaining Quota	404.61M bytes



Key	Description
Job Status	The overall status of the backup job. Normally, you should see "Backup finished successfully" in this field. If you happen to get something else, please click the [Detailed Report] images on the page.
Backup Time	The time when the backup job ran
New Files	Total number and size of backup files added to your backup set
Updated Files	Total number and size of backup files updated in your backup set
Deleted Files	Total number and size of backup files deleted from your backup set
Moved Files	Total number and size of backup files relocated in your backup set
Backup Data Size	The total backup data stored in the data area
Retention Area Size	The total backup data stored in the retention area. Old copies of updated or deleted backup files are retained in the retention area for the number of days as specified by the retention policy of the backup set before they are removed from the system.
Total Upload	Total number and size of backup files uploaded to the backup server
Backup Quota	Backup Quota
Remaining Quota	Remaining Quota

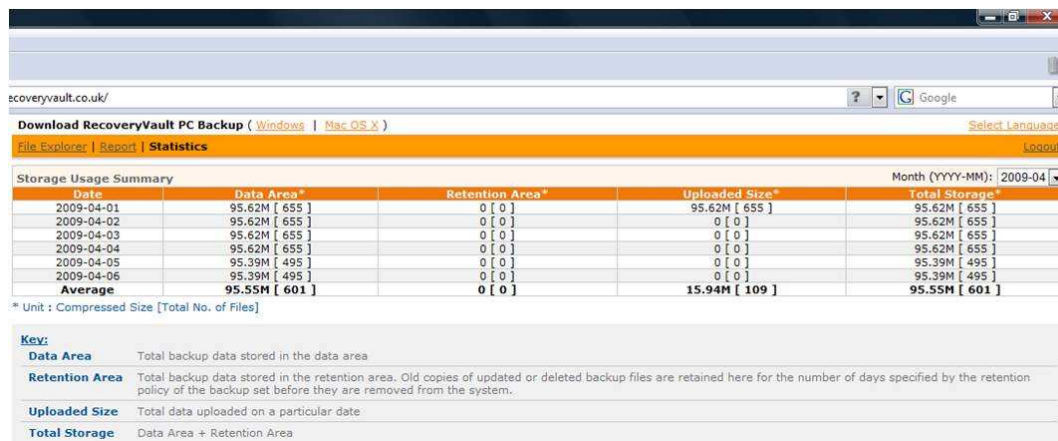
You can open the [Full Backup Report] to review all information logged by a backup job by clicking the [Detailed Report] image on the [Report] panel.

Key:

Parameter	Description
Backup Set	The name of the backup set
Backup Job	The name of the backup job (which is the start time of the backup job)
Backup Status	The overall status of the backup job.
Backup Time	The time when the backup job ran
Backup Log	All messages logged when running this backup job
New Files	Total number and size of backup files added to your backup set
Updated Files	Total number and size of backup files updated in your backup set
Deleted Files	Total number and size of backup files deleted from your backup set
Moved Files	Total number and size of backup files relocated in your backup set
New File List	Full list of all backup files added to your backup set
Updated File List	Full list of all backup files updated in your backup set
Deleted File List	Full list of all backup files deleted from your backup set
Moved File List	Full list of all backup files relocated in your backup set

10.6 Review Storage Statistics

You can review the amount of data you have stored on the backup server and uploaded to the backup server on each day by opening the [Statistics] panel available on the web interface. To review your storage statistics for a different month, just select the month you are after by selecting from the [Month] drop down list.



Download RecoveryVault PC Backup ([Windows](#) | [Mac OS X](#)) [Select Language](#)

[File Explorer](#) | [Report](#) | [Statistics](#) [Logout](#)

Storage Usage Summary Month (YYYY-MM): 2009-04

Date	Data Area*	Retention Area*	Uploaded Size*	Total Storage*
2009-04-01	95.62M [655]	0 [0]	95.62M [655]	95.62M [655]
2009-04-02	95.62M [655]	0 [0]	0 [0]	95.62M [655]
2009-04-03	95.62M [655]	0 [0]	0 [0]	95.62M [655]
2009-04-04	95.62M [655]	0 [0]	0 [0]	95.62M [655]
2009-04-05	95.39M [495]	0 [0]	0 [0]	95.39M [495]
2009-04-06	95.39M [495]	0 [0]	0 [0]	95.39M [495]
Average	95.55M [601]	0 [0]	15.94M [109]	95.55M [601]

* Unit : Compressed Size [Total No. of Files]

Key:

- Data Area** Total backup data stored in the data area
- Retention Area** Total backup data stored in the retention area. Old copies of updated or deleted backup files are retained here for the number of days specified by the retention policy of the backup set before they are removed from the system.
- Uploaded Size** Total data uploaded on a particular date
- Total Storage** Data Area + Retention Area




100%

Key	Description
Date	The date the following statistics are collected
Data Area	Total number and size of backup files stored in the data area on a particular date
Retention Area	Total number and size of backup files stored in the retention area on a particular date
Uploaded Size	Total number and size of backup files uploaded to the backup server on a particular date
Total Storage	Total number and size of backup files stored under your backup account on a particular date

11 Further Information

11.1 FAQs

Please see if your question has already been answered in our FAQs available on our website.

11.2 Contact Us

You can find our contact information by following instructions below.

- i. Open RecoveryVaultPC from the system tray
- ii. Click the  from the top menu
- iii. Contact us by using the information shown in the [About] dialog box

